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Mr. Lake H. Barrett, Acting Director
Office of Civilian Radioactive Waste Management
Department of Energy
1000 Independence Avenue
Washington DC 20585

SUBJECT: Comments on Yucca Mountain Site Suitability

Dear Mr. Barrett:

I urge the Secretary of Energy to recommend that DOE proceed to the next stage of the Yucca Mountain repository development, the preparation and submittal of a license application for repository construction. DOE has made a strong technical case for the suitability of the proposed Yucca Mountain site in the Preliminary Site Suitability Evaluation (PSSE).

The PSSE documents a 20-year, $7 billion scientific site characterization program, supported in detail through its underlying reports: Supplemental Science and Performance Assessment (SSPA), Science and Engineering Report (S&ER), and the Total System Performance Assessment – Site Recommendation (TSPA-SR). The DOE analyses show that the Yucca Mountain site is likely to meet or perform better than the applicable radiation protection standards established by the EPA and NRC. Their long-term projections of annual dose to a 'reasonably maximally exposed individual' during the next 10,000 years and even longer are significantly less than natural background doses in the Yucca Mountain vicinity. Thus, it is not likely that the Yucca Mountain repository will ever present a significant hazard to public health and safety even to the most highly exposed individuals living near Yucca Mountain.

This work has been subjected to many intense independent peer reviews to assure its soundness. In addition, independent analyses of the total system performance conducted by EPRI over the past 12 years have substantiated the validity of the PSSE conclusions.

Although these in-depth technical evaluations, as well as the subsequent scrutiny of the results to assure their validity through the licensing process, are the fundamental reasons for proceeding with the Yucca Mountain repository development, there are broader national issues that support going ahead:

- DOE has the legal obligation, confirmed by three federal courts, to accept spent fuel from the utilities, starting on January 31, 1998. Yet, it has accepted none despite the fact that $16 billion has been paid through electricity consumers to the Nuclear Waste Fund for the repository.
- Support of "the expansion of nuclear energy in the United States as a major component of our energy policy" is a key recommendation in the new National Energy Policy. A complimentary element of the policy is recognition of the need to provide for the safe disposal of nuclear waste and the use of the best science to provide a deep geologic repository for nuclear waste.
- Proceeding to the next step will support the continued operation of our nation's fleet of nuclear power plants. At the present time, 103 operating nuclear power plants supply approximately 20 percent of our nation's electricity, significantly reducing the nation's reliance on non-US suppliers of energy resources.
- The use of nuclear energy for electricity production now and in the future provides major environmental benefits: Of all energy sources, nuclear energy production has among the lowest impacts on the environment, including water, land, habitat, species and air resources. Nuclear power plants produce no controlled air pollutants, such as sulfur and particulates, or greenhouse gases.

Responses to the specific questions you posed in your letter of August 27, 2001 are attached.

Yours truly,

John J. Taylor
VP, Nuclear Power, EPRI (retired)

ATTACHMENT: RESPONSES TO SUGGESTED TOPICS FOR PUBLIC COMMENT ON YUCCA MOUNTAIN

Please provide your views concerning whether the Yucca Mountain Preliminary Site Suitability Evaluation (PSSE) and other scientific documents produced by the Department provide an adequate basis for finding that the Yucca Mountain site is suitable for development of a repository. If you believe that certain aspects of the PSSE are inadequate, please detail the basis for this belief and indicate how the documentation might be made adequate with respect to these aspects

The PSSE and other scientific documents do provide an adequate basis for finding that the Yucca Mountain site is suitable for development of a repository.

If the Secretary determines that the scientific analysis indicates that the Yucca Mountain site is likely to meet the applicable radiation protection standards established by the Environmental Protection Agency and Nuclear Regulatory Commission, do you believe that the Secretary should proceed to recommend the site to the President at this time?

Yes.

Are there any reasons that you believe should prevent the President from concluding that the Yucca Mountain site is qualified for the preparation and submission of a construction license application to the Nuclear Regulatory Commission?

No, the scientific evidence shows that the site is qualified for the next phase of repository development.

Please provide any other comments concerning any relevant aspect of the Yucca Mountain site for use as a repository, or that are otherwise relevant to the consideration of a possible recommendation by the Secretary.

(1) There are significant national benefits a decision to proceed to the next step in the process to license the proposed repository will provide as summarized in my letter.

(2) Transportation of used nuclear fuel and defense waste to Yucca Mountain is safe. The commercial nuclear power industry has transported almost 3,000 domestic shipments of used nuclear fuel and more than 21,000 international shipments without a release of radioactive material to the environment. NRC evaluations of transportation accidents under severe conditions, such as the modal study and NUREG/CR-6672 indicate that the risks associated with used fuel transportation are very low. The results of the transportation risk analyses in the Yucca Mountain Draft Environmental Impact Statement (DEIS) and the Private Fuel Storage Project DEIS support this conclusion. It is unclear what role the issue of transportation should have in the determination of

suitability of the Yucca Mountain site. There appears to be no unique transportation issue associated with the Yucca Mountain site that would not also exist for many other sites.

(3) Although DOE's analyses support the longevity of the proposed engineered package, Yucca Mountain's distinct natural advantages greatly reduce dependence on engineered barriers. Yucca Mountain' aridity limits the amount of water flowing through the repository, thus limiting the rate at which radionuclides could escape. The repository horizon at Yucca Mountain is above the water table in the unsaturated zone so that only a fraction of the waste containers will ever have groundwater flowing over them. Sites using bentonite or in clay or salt formations must limit the amount of decay. Yucca Mountain is in an area of limited natural resources so that the likelihood of human intrusion is much lower than at sites where natural resources are more abundant.

(4) The natural features of the Yucca Mountain site support a variety of potential engineering designs. DOE has provided a total of *five* different engineered designs. All have been shown to comply with the EPA radiation standards. Additional design improvements that DOE may choose to make for the license application will only further bolster confidence in the Yucca Mountain repository system as a whole.

(5) DOE has developed a post-closure safety case that provides confidence the repository system is adequate. The DOE general safety case makes appropriate use of several commonly used elements: defense-in-depth, multiple natural and engineered barriers, margin, conservatism, multiple lines of evidence, and natural analogues. DOE has presented analyses showing these barriers provide multiple, independent lines of evidence to bolster confidence that the understanding and modeling of future Yucca Mountain system behavior is reasonable.